UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,258	09/15/2003	Shih-Zheng Kuo	9585-0280	9035

73552 7590 11/17/2008

Stolowitz Ford Cowger LLP
621 SW Morrison St
Suite 600
Portland, OR 97205

EXAMINER	
KAU, STEVEN Y	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
11/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,258	KUO, SHIH-ZHENG	
	Examiner	Art Unit	
	STEVEN KAU	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment was received on 8/11/2008, and has been entered and made of record. Claims 1-24 are pending for further examination in this action.

Response to Remark/Arguments

2. Applicant's arguments with respect to claims 1-24 have been fully considered and the reply to the Remarks/Arguments is in the following:

- Applicant's arguments, section "Claim Rejections – 35 U.S.C. §112", page 9, Remarks, with respect to claims 25-30 have been fully considered and are persuasive. The rejection of claims 25-30 under 35 U.S.C. § 112 First Paragraph has been withdrawn.
- Applicant's arguments, section "Claim Rejections – 35 U.S.C. §112", page 9, Remarks, with respect to 10-18 and 19-24 have been fully considered and are persuasive. The rejection of claims 29-41 and 43-55 under 35 U.S.C. § 112 Second Paragraph has been withdrawn.
- Applicant's arguments with respect to claims 1-24 have been fully considered but are moot in view of the new ground(s) of rejection due to the amendments.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 2, 4, 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) (Lee' 015) in view of Selby (US 5,404,232) (Selby' 232) and further in view of Irie et al (US 5,644,409) (Irie' 409)**.

Regarding claim 1.

Lee' 015 discloses a method, comprising: scanning a document to determine a plurality of actual gray level values for a plurality of pixels of scanned from the document (**Lee' 015 discloses a method to have an optical ruler located along the scanning direction thus both document and the optical ruler are scanned and gray values of both objects are obtained, Figs. 1-3 and col 2, lines 5-16 and lines 37-59 and col 4, lines 40-45**).

Lee' 015 does not disclose scanning a continuous longitudinal black pattern; scanning a continuous longitudinal white pattern; determining a compensational gray level value with respect to the actual gray level value for each of the pixels based at least in part on the correctional gray level value for complete black, the correctional gray level value for complete white, and the actual gray level values for each of the pixels

scanned from the document; and compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels.

In the same field of endeavor, Selby' 232 teaches scanning a continuous longitudinal black pattern while scanning the document to determine a correctional gray level value for complete black (**Selby' 232 teaches a method for calibrating a scanner with a pair of calibration strips and test strip 32 is elongated black strip as shown in Figs. 2 & 4 for obtaining gray-scale level of both scanned image and the test strip, Fig. 3 and col. 3, line 34 to col 4, line 36**) and scanning a continuous longitudinal white pattern while scanning the document to determine a correctional gray level value for complete white (**Selby' 232 teaches a method for calibrating a scanner with a pair of calibration strips and test strip 30 is elongated white strip as shown in Figs. 2 & 4 for obtaining gray-scale level of both scanned image and the test strip, Fig. 3 and col. 3, line 34 to col 4, line 36**); and

In the same field of endeavor, Irie' 409 teaches determining the actual gray level values for each of the pixels scanned from the document (**e.g. Irie' 409 discloses that the desired image and is scanned prior to the compensation process, thus the actual gray level values of scanned document is obtained and determined prior to steps of compensation, Fig. 1, col 5, lines 28-34**); a compensational gray level value with respect to the actual gray level value for each of the pixels based at least in part on the correctional gray level value for complete black (**e.g. Fig. 5 and col 7, lines 19-55 and col 10, lines 9 to col 11, line 65 discloses detail of a shading correction circuit to adjust or compensate based on pixel level for complete black**). the

correctional gray level value for complete white (e.g. **e.g. Fig. 5 and col 7, lines 19-55 and col 10, lines 9 to col 11, line 65 discloses detail of a shading correction circuit to adjust or compensate based on pixel level for complete white**), and compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels (**Irie' 409 discloses shading correction to compensate for non-uniformity in pixel due to non-uniformity in illumination of a light, and correction for this matter is to compensate or balance image brightness with gray level value for each pixel, col 1, lines 13-28 and col 10, line 9 to col 11 line 65).**

Having a method of Lee' 015 reference and then given the well-established teaching of Selby' 232 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Lee' 015 reference to include scanning a continuous longitudinal black pattern while scanning the document to determine a correctional gray level value for complete black, and scanning a continuous longitudinal white pattern while scanning the document to determine a correctional gray level value for complete white as taught by Selby' 232 reference since doing so would increase the versatility of the method provided by Lee' 015 and further the services provided could easily be established for one another with predictable results; then to modify the combination of Lee' 015 and Selby' 232 to include determining the actual gray level values for each of the pixels scanned from the document; and compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels as taught by Irie' 409

sine doing so would improve the method provided by Lee' 015 for having the capability of compensating the image brightness by utilizing gray level values for scanned image and therefore, the result of scanned image would be more accurately to representing its original, and further, the gray level compensation method provided by Irie' 409 can be implemented into Lee' 015 method with predictable result.

Regarding claim 2, in accordance with claim 1.

Lee' 105 discloses a top (**e.g. top housing of Fig. 1, col 2, lines 37-58**); a scanning chassis configured to be movable under the top (**e.g. moving image sensor is configured to move and to read image information, Abstract, col 3, line 65 to col 4, line 7**); and a scanning platform disposed at the top (e**.g. top housing of the scanner, Fig. 1 & col 2, lines 37-58**), wherein the scanning platform is configured to support the document above the scanning chassis (**e.g. scanning side of the document is on the top of the glass facing the transparent window, Fig. 1, col 2,lines 37-58**), wherein the longitudinal black and white patterns are disposed on an inner wall of the top adjacent to the scanning platform (**e.g. optical rulers is along the scanning platform, Fig. 1, col 1 line 66 to 2, line 16**), such that the scanning chassis can scan the document and the longitudinal black and white patterns substantially simultaneously (**e.g. the width of image sensor is larger than the transparent window so that both document to be scanned and the optical rulers are scanned at the same time, col 2, lines 37-58**).

Regarding claim 4.

Claim 4 is directed to a method claim which substantially corresponds to the steps of the method in claim 1. Thus, claim 4 is rejected as set forth above for claim 1.

Regarding claim 5, in accordance with claim 4.

Regarding **claim 5**, the structure elements of method claim 2 perform all steps of method claim 5. Thus claim 5 is rejected under 103(a) for the same reason discussed in the rejection of claim 2.

Regarding claim 7.

Claim 7 is directed to a method claim which substantially corresponds to the steps of the method in claim 1. Thus, claim 7 is rejected as set forth above for claim 1.

Regarding claim 8, in accordance with claim 7.

Regarding **claim 8**, the structure elements of method claim 2 perform all steps of method claim 8. Thus claim 8 is rejected under 103(a) for the same reason discussed in the rejection of claim 2.

5. **Claims 3, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) (Lee' 015) in view of Selby (US 5,404,232) (Selby' 232) and further in view of Irie et al (US 5,644,409) (Irie' 409) as applied to claim 1 above, and further in view of Horiuchi et al (US 6,445,469) (Horiuchi' 469)**

Regarding claim 3, in accordance with claim 1.

Horiuchi' 469 discloses calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for complete black) ÷ (the correctional gray level value for complete white - the correctional gray level value for

complete black) * (a theoretical gray level value for complete white - a theoretical gray level value for complete black)] (**Horiuchi teaches and suggests embodiments, e.g. First, Third to Eleventh, for using equations, col 9, lines 50-60, and subroutines A1, A2 and A3 for determining compensational gray level, Figs. 9, 16, 25, 26, 27 and 28, cols 9 through 12**).

Having a method of Lee' 015 reference and then given the well-established teaching of Horiuchi' 469 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Lee' 015 reference to include calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for complete black) ÷ (the correctional gray level value for complete white - the correctional gray level value for complete black) * (a theoretical gray level value for complete white - a theoretical gray level value for complete black)] as taught by Horiuchi' 469 reference since doing so would increase the versatility of the method of Lee' 015 and further the calculation provided could easily be established for one another with predictable results.

Regarding claim 6, in accordance with claim 5.

Regarding **claim 6**, the structure elements of method claim 3 perform all steps of method claim 6. Thus claim 6 is rejected under 103(a) for the same reason discussed in the rejection of claim 3.

Regarding claim 9, in accordance with claim 7.

Regarding **claim 9**, the structure elements of method claim 3 perform all steps of method claim 9. Thus claim 9 is rejected under 103(a) for the same reason discussed in the rejection of claim 3.

6. Claims 10-14, 16, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheng et al (US 6,753,982) (Sheng' 982) in view of Seachman et al (US 5,621,217) (Seachman' 217) and further in view of Horiuchi et al (US 6,445,469) (Horiuchi' 469).

Regarding claim 10.

Shang' 982 discloses An apparatus comprising: a top portion having a surface (**Figs. 1a-b disclose top portion for scanning paper or document disposed on the flat glass platform 20, col 3, lines 47-65**); a scanning element configured to be moveable under the top portion in a document scanning direction (**Scanning module 14 of Fig. 2b must be configured to be moveable under the top portion of the scanner, col 3, lines 47-65**); a scanning platform disposed at the top portion, the scanning platform configured to support a document above the scanning element (**Figs. 1a-b disclose top portion for scanning paper or document disposed on the flat glass platform 20, col 3, lines 47-65**); and a processor (**Shang' 982 teaches a microprocessor and embedded computer program for scanning, col 3, lines 9-16**).

Shang' 982 does not discloses a reference pattern disposed on the surface of the top portion adjacent to the scanning platform and elongated in the document scanning direction; determine actual gray level values for each pixels of a scanned image of the

document; determine a compensational gray level value for the pixels of the scanned image based at least in part on the reference pattern; and compensate the scanned image using the compensational gray level value.

Seachman' 217 teaches a reference pattern disposed on the surface of the top portion adjacent to the scanning platform and elongated in the document scanning direction (**Figs 1 & 2, "a lamp 1 illuminates a calibration strip 3 with light 10 during a calibration process" implies that calibration strip 3 must be disposed on the top portion adjacent to the scanner platform, otherwise, sensor array will not be able to pick the reflected light from calibration strip for calibration; in addition the reference pattern is in a elongated shape and in the direction of document scanning, col 4, lines 4-22**).

Horiuchi' 469 teaches a processor (**e.g. microprocessor, col 3, lines 9-16**) configured to determine actual gray level values for each pixels of a scanned image of the document (**col 3, lines 18-26, determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line**); determine a compensational gray level value for the pixels of the scanned image based at least in part on the reference pattern (**examine and compensate the whole image, col 13, lines 16-26**); and compensate the scanned image using the compensational gray level value (**compensate the whole image by using the correction factor so that all the white (or black) portions show a constant value, col 13, lines 16-44**).

Having an apparatus of Shang' 982 reference and then given the well-established teaching of Seachman' 217 reference, it would have been obvious to one

having ordinary skill in the art at the time the invention was made to modify the apparatus of Shang' 982 reference to include a reference pattern disposed on the surface of the top portion adjacent to the scanning platform and elongated in the document scanning direction as taught by Seachman' 217 reference since doing so would improve the versatility of the apparatus for generating image data for gray level calibration process (**col 4, lines 49-67, Seachman**) and further the services provided could easily be established for one another with predictable results; and then to modify the combination of Shang' 982 and Seachman' 217 reference to include a processor configured to determine actual gray level values for each pixels of a scanned image of the document, determine a compensational gray level value for the pixels of the scanned image based at least in part on the reference pattern and compensate the scanned image using the compensational gray level value as taught by Horiuchi' 469, since doing so would enhance the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (**col 1, lines 45-49, Horiuchi' 469**).

Regarding claim 11, in accordance with claim 10.

Sheng' 982 does not teach wherein the processor is further configured to determine a correctional gray level value based at least in part on the reference pattern.

Horiuchi' 469 discloses wherein the processor (**e.g. microprocessor, col 3, lines 9-16**) is further configured to determine a correctional gray level value based at least in part on the reference pattern (**Chart 17 of Fig 8, col 8, lines 41-58, e.g. The**

chart 17 is read by the image reading means in such a way that the longitudinal direction of the chart may meet with the feed direction of the image reading means, and "0" value for black and "255" value for white as indicated in the test chart).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include the processor is further configured to determine a correctional gray level value based at least in part on the reference pattern taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 12, in accordance with 11.

Sheng' 982 does not teach wherein the reference pattern comprises a continuous black pattern elongated in a direction parallel with the document scanning direction and a continuous white pattern elongated in a direction parallel with the document scanning direction and positioned adjacent to the continuous black pattern, and wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern and determine a white correctional gray level value from the continuous white pattern.

Seachman' 217 teaches wherein the reference pattern comprises a continuous black pattern elongated in a direction parallel with the document scanning direction and a continuous white pattern elongated in a direction parallel with the document scanning

direction and positioned adjacent to the continuous black pattern (**e.g. Seachman' 217 teaches a calibration strip 3 in which area 13 is a continuous dark or black color pattern and area 12 is a continuous white adjacent to the dark or black pattern and the strip is elongate shape parallel to the scanning direction, Figs. 1, 2, and 4, col 4, lines 4-16**).

Horiuchi' 469 discloses wherein the reference pattern comprises a black pattern and a white pattern (**Chart 17 of Fig 8**), and wherein the processor is further configured to determine a black correctional gray level value and a white correctional gray level value (**correction factor is determined by image data of density (high and low, "0" for black and "255" for white, col 4, lines 49 through col 5, line 11, & col 8, lines 52-58**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 to include the reference pattern comprises a black pattern and a white pattern, and wherein the processor is further configured to determine a black correctional gray level value and a white correctional gray level value taught by Horiuchi' 469 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 13, in accordance with claim 12.

Sheng' 982 does not discloses wherein the processor is further configured to determine the compensational gray level value based at least in part on the black

correctional gray level value, the white correctional gray level value, a theoretical gray level value for black, a theoretical gray level value for complete white, and the actual gray level values.

Horiuchi' 469 teaches wherein the processor is further configured to determine the compensational gray level value based at least in part on the black correctional gray level value (**col 13, lines 1-26**), the white correctional gray level value (**col 13, lines 1-26**), a theoretical gray level value for black (**Fig. 28, col 11, lines 53 through col 12, line 11**), a theoretical gray level value for complete white (**Fig. 28, col 11, lines 53 through col 12, line 11**) and the actual gray level values (**col 3, lines 18-26 determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 to include that wherein the processor is further configured to determine the compensational gray level value based at least in part on the black correctional gray level value, the white correctional gray level value, the white correctional gray level value, a theoretical gray level value for black, a theoretical gray level value for complete white, and the actual gray level values taught by Horiuchi' 469 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 14, in accordance with claim 11.

Regarding **claim 14**, Sheng' 982 differs from claim 14, in that he does not disclose wherein the reference pattern comprises a continuous black pattern, and wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern.

Seachman' 217 teaches a continuous black pattern (e.g. area 13 of Fig. 1) for scanning calibration (Seachman' 217 teaches a continuous black pattern for scanning calibration as shown in Figs. 1, 2 and 4, col 4, lines 4-16).

Horiuchi' 469 discloses wherein the reference pattern comprises a black pattern (**Chart 17, Fig 8**), and wherein the processor is further configured to determine a black correctional gray level value (**Horiuchi' 469 teaches calculating correction value for black or white levels of the whole image**, **col 13, lines 1-26**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 to include wherein the reference pattern comprises a continuous black pattern as taught by Seachman' 217 since doing so would enhance the apparatus of Sheng' 982 to provide gray level measurement of black reference pattern for scanner calibration with predictable result; then to modify the combination of Sheng' 982 and Seachman' 217 to include wherein the reference pattern comprises a black pattern, and wherein the processor is further configured to determine a black correctional gray level value as taught by Horiuchi' 469 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 16, in accordance with claim 11.

Regarding **claim 16**, Sheng' 982 differs from claim 16, in that he does not disclose wherein the reference pattern comprises a continuous white pattern, and wherein the processor is further configured to determine a white correctional gray level value from the continuous white pattern.

Seachman' 217 teaches a continuous white pattern (e.g. area 12 of Fig. 1) for scanning calibration (Seachman' 217 teaches a continuous white pattern for scanning calibration as shown in Figs. 1, 2 and 4, col 4, lines 4-16).

Horiuchi' 469 discloses wherein the reference pattern comprises a white pattern (**Chart 17, Fig 8**), and wherein the processor is further configured to determine a white correctional gray level value (**Horiuchi' 469 teaches calculating correction value for black or white levels of the whole image**, **col 13, lines 1-26**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 to include wherein the reference pattern comprises a continuous black pattern as taught by Seachman' 217 since doing so would enhance the apparatus of Sheng' 982 to provide gray level measurement of white reference pattern for scanner calibration with predictable result; then to modify the combination of Sheng' 982 and Seachman' 217 to include wherein the reference pattern comprises a black pattern, and wherein the processor is further configured to determine a black correctional gray level value as taught by Horiuchi' 469 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to

fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 17, in accordance with claim 16.

Regarding **claim 17**, Sheng' 982 differs from claim 17, in that he does not disclose wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value, a theoretical gray level value for white, and the actual gray level values.

Horiuchi' 469 discloses wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value (**e.g. calculate and analyzing result for white or black correction level, col 13, lines 1-26**), a theoretical gray level value for complete white (Fig. 28, col 11, lines 53 through col 12, line 11), and the actual gray level values (**col 3, lines 18-26 determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 to include wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value, a theoretical gray level value for white, and the actual gray level values as taught by Horiuchi' 469 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 19.

Claim 19 is directed to an apparatus claim which substantially corresponds to operation of the device in claim 10. Thus, claim 19 is rejected as set forth above for claim 10.

7. **Claims 15, 18, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheng et al (US 6,753,982) (Sheng' 982) in view of Seachman et al (US 5,621,217) (Seachman' 217) and further in view of Horiuchi et al (US 6,445,469) (Horiuchi' 469) as applied to claim 10 above, and further in view of Lee et al (US 6,178,015) (Lee' 015).**

Regarding claim 15, in accordance with claim 10.

Sheng' 982 does not disclose wherein the scanning element is configured to scan both the reference pattern and the document at the same time.

Lee' 015 teaches wherein the scanning element is configured to scan both the reference pattern and the document at the same time (Lee' 015 discloses in detail that both reference pattern and document are scanned in the same time, Figs. 1 and 2, col 2, line 37 to col 3, line 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 combining with Seachman' 217 and Horiuchi' 469 to include wherein the scanning element is configured to scan both the reference pattern and the document at the same time as taught by Lee' 015 since doing so would improve the apparatus of Sheng' 982 to collect scanning data including image

and reference data for gray level adjustment, and further, the disclosure provided by Lee' 015 can easy be implemented with predictable result.

Regarding **claim 18**, Sheng' 982 dos not disclose wherein a length of the reference pattern is parallel to the scanning direction and equal to or greater than a length of the scanning platform.

Lee' 015 teaches wherein a length of the reference pattern is parallel to the scanning direction and equal to or greater than a length of the scanning platform (Fig. 1, col 2, lines 37-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng' 982 to include wherein a length of the reference pattern is parallel to the scanning direction and equal to or greater than a length of the scanning platform as taught by Lee' 015 since doing so would improve the apparatus of Sheng' 982 be able to include the full length of reference pattern to ensure all reference data necessary collected for scanner calibration, and the disclosure by Lee' 015 can easily be implemented with predictable result.

Regarding claim 20, in accordance with claim 19.

Regarding **claim 20**, the structure elements of apparatus claim 18 perform all steps of apparatus claim 20. Thus claim 20 is rejected under 103(a) for the same reason discussed in the rejection of claim 18.

Regarding claim 21, in accordance with claim 20.

Regarding **claim 21**, the structure elements of apparatus claim 12 perform all steps of apparatus claim 21. Thus claim 21 is rejected under 103(a) for the same reason discussed in the rejection of claim 12.

Regarding claim 22, in accordance with claim 20.

Regarding **claim 22**, the structure elements of apparatus claim 14 perform all steps of apparatus claim 22. Thus claim 22 is rejected under 103(a) for the same reason discussed in the rejection of claim 14.

Regarding claim 23, in accordance with claim 20.

Regarding **claim 23**, the structure elements of apparatus claim 16 perform all steps of apparatus claim 23. Thus claim 23 is rejected under 103(a) for the same reason discussed in the rejection of claim 16.

Regarding claim 24, in accordance with claim 19.

Regarding **claim 24**, the structure elements of apparatus claim 15 perform all steps of apparatus claim 24. Thus claim 24 is rejected under 103(a) for the same reason discussed in the rejection of claim 15.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on Monday to Friday, from 8:30 am -5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Steven Kau/
Examiner, Art Unit 2625
11/11/2008

/David K Moore/
Supervisory Patent Examiner, Art Unit 2625